

## GENERAL NOTES

### ABERRANT SPECIMEN OF *CHLOSYNE LACINIA* FROM CENTRAL TEXAS RESEMBLES TROPICAL FORM

Throughout its geographical range from the southern United States to Argentina, *Chlosyne lacinia* (Geyer) exhibits wing pattern variation which is "hard to match in any other butterfly" (p. 405, Higgins, 1960, Trans. R. Entomol. Soc. Lond. 112: 381-475). The phenotype in central and southern Texas is *adjutrix* Scudder which is best considered a form of *saundersi* Doubleday, a phenotype which occurs throughout the range of this species (Godman & Salvin, 1882, Rhopalocera. Biologia-Centrali-Americana. Vol. 36-38; Higgins, op. cit.). Phenotypes of this species exhibit a near continuum of variation from the highly fulvous nominate *lacinia* Geyer to the melanic *quehtala* Reakirt (Godman & Salvin, op. cit., Pl. 19, Fig. 3-17).

Butterflies from Texas exhibit substantial variation within the *adjutrix* form; such variation has previously received taxonomic attention. An early collecting trip to south Texas ("Gulf region near Corpus Christi") yielded specimens referable to *adjutrix*, *saundersi* and *mediatrix* Felder and Felder (Aaron & Aaron 1884, Papilio 4: 172-182). This latter name was considered by Higgins (op. cit.) to be synonymous with nominate *lacinia*. Although variation is considerable among Texas specimens, the necessity for all of these names appears doubtful. In order not to create confusion *lacinia* populations from central and south Texas will be referred to *adjutrix*.

Normal wing pattern and pigmentation for *adjutrix* are as follows:

**Dorsal.** Brownish-black ground color; broad median band, orange-brown in color, fading intensity and broadness as it approaches costal margin of FW; margins black; normally three post-basal and submedian spots, variable in size and shape, orange in color; postmedian spots white, normally seven. May be adjacent to or separated by ground color from median band; submarginal spots light yellowish-brown, two or three may be distinct, others obscured by ground color; marginal spots white; margin of HW orange.

**Ventral.** Brownish-black ground color; broad median band completely yellow on HW, whitish in costal area of FW, remainder of FW band yellowish and red orange; post-basal and submedian spots yellowish, variable in size, shape and number (especially HW); post-median spots white; submarginal spots yellowish; marginal spots white, red-orange anal spot.

A highly aberrant form of *adjutrix* is in my collection. This aberration was collected on 10 October 1971 along Barton Creek in Zilker Park, Austin, Travis Co., Texas, by L. E. Gilbert. At the time of collection this anomalous male insect was courting a typically patterned female *adjutrix*. The aberrant form may be described as follows (due to the lack of congruity between forewing and hindwing surfaces on both dorsal and ventral surface as in typical *adjutrix*, the four wing surfaces are discussed separately):

**DFW.** Post-basal and submedian spots absent; median band absent except for the four most-costal spots, two most-costal spots white, other two creamish; postmedian spots and marginal spots normal; submarginal spots whitish.

**DHW.** Post-basal and submedian spots absent; median band absent except for four barely-visible (pin-prick) spots, orange in color; postmedian, submarginal and marginal spots normal; anal margin brownish black except for anal spot (red-orange) which corresponds with VHW anal spot.

**VFW.** Post-basal and submedian spots absent; median band reduced except for four costal spots, coloration same as DFW; postmedian and marginal spots normal; submarginal spots whitish.

**VHW.** Post-basal, submedian and median spots absent; postmedian, submarginal, marginal spots and anal spot normal; slightly asymmetric in that anal margin of left

VHW has thin yellowish band which does not extend as far as anal spot while right VHW anal margin is brownish black.

Both dorsal and ventral surfaces of this aberration are similar to an insect portrayed by Godman & Salvin (op. cit., Pl. 19, Fig. 12-13) which Higgins (op. cit.) refers to *paupera* (C. & R. Felder). The example illustrated by Godman & Salvin has an orange-red spot on both dorsal and ventral forewing which my example lacks. However, Higgins (op. cit.) states that there is "much variation" among specimens which he assigned to this taxon. Godman & Salvin (op. cit.) considered this form to be a link between nominate *lacinia* and *adelina* Staudinger which is an extreme melanic form (considered a form of *quehtala* Reakirt by Higgins, op. cit.). Higgins (op. cit.) studied eighteen specimens of this form from six localities scattered from Costa Rica to Peru. The form *paupera* has not been reported from Mexico (Hoffman, 1940, An. Inst. Biol. Mex. 11: 639-739).

In comparing this aberration from central Texas to a form from tropical America, I am not implying that this particular individual is a long-distant migrant from these southern areas. On the contrary I believe that this form represents expression of alleles which are normally suppressed in central Texas populations. A supergene complex probably controls expression of wing phenotypes.

The specimen was collected during a period of extreme abundance of *adjutrix* in central Texas. Heavy late summer rains triggered a population explosion of *adjutrix* which had been very rare for the previous 12 months because of an extreme drought. This aberrant specimen is a further example of increased phenotypic variability during high population levels due to relaxed selective pressures (see e.g., Tetley, 1947, Ent. 80: 177-179; Ford, 1964, Ecological Genetics, Methuen).

Lack of data concerning progeny of the central Texas aberrant does not permit an absolute statement concerning the genetic and/or environmental triggers involved in the production of this phenotype. However, the internal integrity of the design suggests a genetic origin. No spots are "blurred" into bands as is often the situation in environmental aberrations, including those which may be experimentally produced by manipulation of environmental parameters, particularly lowered temperature (Dimock, 1968, J. Lepid. Soc. 22: 146; Shapiro, 1974, J. Res. Lepid. 13: 57-62).

A substantial classification system for aberrations was developed during an earlier study period of butterfly taxonomy (see discussion by Gunder, 1927, Ent. News 37: 263-271). The aberrant form of *Chlosyne lacinia* var. *adjutrix* described above is best classified as a transitional form which describes "individuals which occur irregularly within a species or within a race and which by change of color or by change of pattern graduate with persistent characteristic similarity from near parental type up to definitely limited variation away from parental type" (Gunder, op. cit.: Pl. X). Note the statement by Higgins (op. cit.) that *paupera* is a rather variable form. This form may best be considered as a phenotypic expression of allele combinations normally suppressed by a supergene complex. Under certain environmental conditions population levels of *adjutrix* expand rapidly to very high levels. During this time of temporarily relaxed selection, individuals with synapsis occurring within the supergene are able to survive.

These transitional forms are normally of no taxonomic or evolutionary significance. Such individuals may reproduce but the action of normal selective forces will soon cause their replacement by normal phenotypes. In rare cases, however, a population of the aberrant pattern might establish a local "race" and could, theoretically, produce a taxon of phylogenetic significance.

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